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EXAMINER	
CONTINO, PAUL F	

ART UNIT	PAPER NUMBER
2114	

DATE MAILED: 02/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/051,833	CRAIG ET AL.	
	Examiner	Art Unit	
	Paul Contino	2114	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 November 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17,20-38,41-43,45 and 46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17,20-38,41-43,45 and 46* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-17, 20-38, 41-43, and 45-46 have been considered but are moot in view of the new grounds of rejection.

The Examiner would like to make the Applicant aware that a review of the prosecution up to this Office Action – including a full consideration of all past discussion and correspondence regarding the application, prior art, and the invention as claimed -- has been made.

The Examiner respectfully disagrees with the Applicant that the prior art Moshayedi reference (U.S. PGPub 2002/0091965) fails to disclose a counter "updated each time a spare unit of erase is reassigned". Evidence for this limitation is found in the Moshayedi reference on page 7 in claim 36. The Examiner would also like to point out that the term "increment" may be interpreted as a positive or a negative change in value (see included non-patent literature dictionary definition).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-17, 20-38, 41-43, and 45-46 are rejected under 35 U.S.C. 102(e) as being anticipated by Moshayedi (U.S. PGPub 2002/0091965).

As in claim 1, Moshayedi discloses a method for determining a status associated with a memory system, the memory system including a plurality of spare units of erase, the method comprising:

updating a counter, the counter being arranged to be updated each time a spare unit of erase of the plurality of spare units of erase is reassigned *(page 7 claim 36)*, wherein the counter indicates a number of spare units of erase remaining in the plurality of spare units of erase *(paragraph [0050] lines 7-9, page 7 claims 35 and 36)*;

comparing the counter to a threshold value, the threshold value being indicative of a number of spare units of erase of the plurality of spare units of erase which are yet to be reassigned in order for the memory system to be considered as reliable *(paragraphs [0053]-[0054], page 7 claim 35)*; and

generating an indication when comparing the counter to the threshold value yields a first result, wherein the indication is arranged to indicate that the memory system is substantially near a failure condition *(Abstract, paragraph [0056], page 7 claim 35, where an action taken is interpreted as a first result)*.

As in claim 2, Moshayedi discloses updating the counter includes decrementing the counter each time a spare unit of erase of the plurality of spare units of erase is reassigned *(Abstract, paragraph [0016], page 7 claim 36)*.

As in claim 3, Moshayedi discloses comparing the counter to the threshold value includes determining when a value of the counter is less than or equal to the threshold value *(Abstract, paragraph [0053])*.

As in claim 4, Moshayedi discloses the first result is arranged to indicate that the value of the counter is less than or equal to the threshold value *(Abstract, paragraph [0056])*.

As in claim 5, Moshayedi discloses attempting to write data to a first unit of erase *(paragraphs [0040]-[0042])*;

determining when the first unit of erase is worn *(paragraphs [0041]-[0042])*;

reassigning a first spare unit of erase included in the plurality of spare units of erase as the first unit of erase when it is determined that the first unit of erase is worn *(paragraphs [0041]-[0043])*, wherein updating the counter includes updating the counter to indicate that the first spare unit of erase is reassigned *(paragraph [0050], page 7 claim 36)*; and

writing the data to the reassigned first spare unit of erase *(paragraph [0042])*.

As in claim 6, Moshayedi discloses a memory system for storing information, the memory system comprising:

a plurality of units of erase *(Fig. 2; paragraphs [0038]-[0040] and [0048])*;

a plurality of spare units of erase *(Fig. 2; paragraphs [0041]-[0042] and [0048])*;

a first storage element, the first storage element containing a counter and a threshold *(paragraphs [0050] and [0053])*, the counter indicating a number of spare units of erase included in the plurality of spare units of erase *(paragraph [0050])*, the threshold indicating a predetermined number of spare units of erase *(paragraph [0053])*;

a controller, the controller updating the counter each time a spare unit of erase of the plurality of spare units of erase is reassigned *(paragraphs [0050]-[0052], page 7 claim 36)*, wherein the counter indicates a number of spare units of erase included in the plurality of spare units of erase which have not yet been reassigned *(paragraph [0050])*, the controller comparing the counter to the threshold value to determine if the memory system is in a condition, the condition being an end-of-life condition *(paragraphs [0053]-[0055])*; and

wherein the memory system is arranged to operate in conjunction with a host system *(Figs. 1A and 1B; paragraphs [0032]-[0037])* and the controller is arranged to reassign a spare unit of erase included in the plurality of spare units of erase in response to a request from the host system *(paragraphs [0032]-[0036])*.

As in claim 7, Moshayedi discloses the controller compares the counter to the threshold value to determine if the memory system is in the condition, and the controller determines that the memory system is in the condition when a value of the counter is less than or equal to the threshold value *(Abstract, paragraph [0053])*.

As in claim 8, Moshayedi discloses when it is determined that the value of the counter is less than or equal to the threshold value, the controller generates an indication that the memory system is in the condition *(Abstract, paragraph [0056])*.

As in claim 9, Moshayedi discloses the controller attempts to write data to a first unit of erase included in the plurality of units of erase, and determines if the first unit of erase is worn *(paragraphs [0041]-[0043])*.

As in claim 10, Moshayedi discloses when it is determined the first unit of erase is worn, the controller reassigns a first spare unit of erase included in the plurality of spare units of erase as the first unit of erase *(paragraphs [0041]-[0043])*.

As in claim 11, Moshayedi discloses the controller is still further arranged to write the data into the reassigned first spare unit of erase *(paragraphs [0041]-[0043])*.

As in claim 12, Moshayedi discloses the controller is still further arranged to attempt to write data to a first unit of erase included in the plurality of units of erase, and to determine if the first unit of erase is defective *(paragraphs [0040]-[0043])*.

As in claim 13, Moshayedi discloses when it is determined that the first unit of erase is defective, the controller reassigns a first spare unit of erase included in the plurality of spare units of erase as the first unit of erase *(paragraphs [0040]-[0043])*.

As in claim 14, Moshayedi discloses the controller writes the data into the reassigned first spare unit of erase *(paragraphs [0040]-[0043])*.

As in claim 15, Moshayedi discloses the plurality of units of erase are a plurality of sectors, and the plurality of spare units of erase are a plurality of spare sectors *(Fig. 2; paragraph [0039])*.

As in claim 16, Moshayedi discloses a non-volatile memory, wherein the plurality of units of erase, the plurality of spare units of erase, and the first storage element are included in the non-volatile memory *(paragraphs [0007] and [0034])*.

As in claim 17, Moshayedi discloses the memory system is a non-volatile memory system *(paragraphs [0007] and [0034])*.

As in claim 20, Moshayedi discloses the memory system is one of a PC card, a CompactFlash card, a MultiMedia Card, a SmartMedia card, a Memory Stick card, and a Secure Digital card *(Fig. 1A; paragraphs [0032]-[0034])*.

As in claim 21, Moshayedi discloses a system, comprising:

a host system *(Figs. 1A and 1B; paragraphs [0032]-[0037])*;

a memory system, the memory system being arranged to interface with the host system *(Figs. 1A and 1B; paragraphs [0032]-[0037])*, the memory system including,

a plurality of units of erase *(Fig. 2; paragraphs [0038]-[0040] and [0048])*,

a plurality of spare units of erase *(Fig. 2; paragraphs [0041]-[0042] and [0048])*, and

a first storage element, the first storage element being arranged to contain a counter and a threshold *(paragraphs [0050] and [0053])*, the counter being arranged to indicate a number of spare units of erase included in the plurality of spare units of erase *(paragraph [0050])*, the threshold being arranged to indicate a number of spare units of erase which are not to be reassigned *(paragraph [0053])*; and

a controller, the controller being arranged to update the counter each time a spare unit of erase of the plurality of spare units of erase is reassigned *(paragraphs [0050]-[0052], page 7 claim 36)*, wherein the counter indicates a number of spare units of erase included in the plurality of spare units of erase which have yet to be reassigned *(paragraph [0050])*, the controller further being arranged to compare the counter to the threshold value to determine if the memory system is substantially near a condition, the condition being arranged to characterize the memory system as being substantially unreliable *(paragraphs [0053]-[0055])*.

As in claim 22, Moshayedi discloses when the controller is included in the memory system and is arranged to compare the counter to the threshold value to determine if the memory system is substantially near the condition, the controller determines when a value of the counter is less than or equal to the threshold value *(Abstract, paragraph [0053])*.

As in claim 23, Moshayedi discloses when it is determined that the value of the counter is less than or equal to the threshold value, the controller generates an indication that the memory system is substantially near the condition *(Abstract, paragraph [0056])*.

As in claim 24, Moshayedi discloses the host system is arranged to request that data be written to the memory system, and the controller is included in the memory system, the controller further being arranged to attempt to write the data to a first unit of erase included in the plurality of units of erase in response to the request *(paragraphs [0040]-[0042])*, and to determine if the first unit of erase is worn *(paragraphs [0041]-[0042])*.

As in claim 25, Moshayedi discloses when it is determined that the first unit of erase is worn, the controller reassigns a first spare unit of erase included in the plurality of spare units of erase as the first unit of erase and writes the data into the reassigned first spare unit of erase *(paragraphs [0042] and [0050], page 7 claim 36)*.

As in claim 26, Moshayedi discloses the host system is arranged to request that data be written to the memory system, and the controller is included in the memory system, the controller further being arranged to attempt to write the data to a first unit of erase included in the plurality of units of erase in response to the request, and to determine if the first unit of erase is defective *(paragraphs [0040]-[0042])*.

As in claim 27, Moshayedi discloses when it is determined that the first unit of erase is defective, the controller reassigns a first spare unit of erase included in the plurality of spare units of erase as the first unit of erase and writes the data into the reassigned first spare unit of erase *(paragraphs [0041]-[0043])*.

As in claim 28, Moshayedi discloses the plurality of units of erase are a plurality of sectors, and the plurality of spare units of erase are a plurality of spare sectors *(Fig. 2; paragraph [0039])*.

As in claim 29, Moshayedi discloses the memory system is a memory card *(paragraphs [0007] and [0034])*.

As in claim 30, Moshayedi discloses the memory card is one selected from the group consisting of a PC card, a CompactFlash card, a MultiMedia card, a Smart Media card, a Memory Stick card, and a Secure Digital card *(paragraphs [0007] and [0034])*.

As in claim 31, Moshayedi discloses the host system is arranged to capture information and to attempt to store the information in the memory system *(paragraph [0032])*.

As in claim 32, Moshayedi discloses the information is one of still image information, audio information, video image information, and wireless information *(paragraph [0032] digital camera system)*.

As in claim 33, Moshayedi discloses the host system is one of a digital camera, a video camera, a cellular communications device, an audio player, and a video player *(paragraph [0032] digital camera system)*.

As in claim 34, Moshayedi discloses a memory system for storing information, the memory system comprising:

a plurality of spare units of erase *(Fig. 2; paragraphs [0038]-[0040] and [0048])*;

means for storing a counter *(paragraphs [0036] and [0050])*;

means for storing a threshold *(paragraphs [0036] and [0053])*;

means for reassigning a spare unit of erase of the plurality of spare units of erase *(paragraphs [0041]-[0043])*;

means for updating the counter, the counter being arranged to be updated each time a spare unit of erase of the plurality of spare units of erase is reassigned *(paragraphs [0050]-[0052], page 7 claim 36)*, wherein the counter indicates a number of spare units of erase remaining in the plurality of spare units of erase *(paragraph [0050])*;

means for comparing the counter to the threshold value, the threshold value being indicative of a number of spare units of erase of the plurality of spare units of erase which are yet to be reassigned in order for the memory system to be considered as useable *(paragraphs [0053]-[0055])*; and

means for generating an indication when comparing the counter to the threshold value yields a first result, wherein the indication is arranged to indicate that the memory system is substantially near a failure condition *(paragraphs [0053]-[0055])*.

As in claim 35, Moshayedi discloses the means for updating the counter include means for decrementing the counter each time a spare unit of erase of the plurality of spare units of erase is reassigned *(Abstract, paragraph [0016], page 7 claim 36)*.

As in claim 36, Moshayedi discloses the means for comparing the counter to the threshold value include means for determining when a value of the counter is less than or equal to the threshold value *(Abstract, paragraph [0053])*.

As in claim 37, Moshayedi discloses the first result is arranged to indicate that the value of the counter is less than or equal to the threshold value *(Abstract, paragraph [0056])*.

As in claim 38, Moshayedi discloses means for attempting to write data to a first unit of erase *(paragraphs [0040]-[0042])*;

means for determining when the first unit of erase is worn, wherein the means for reassigning the unit of erase include means for reassigning a first spare unit of erase included in the plurality of spare units of erase as the first unit of erase when it is determined that the first unit of erase is worn *(paragraphs [0041]-[0043])*, and wherein the means for updating the

counter include means for updating the counter to indicate that the first spare unit of erase is reassigned *(paragraph [0050], page 7 claim 36)*; and

means for writing the data to the reassigned first spare unit of erase *(paragraph [0042])*.

As in claim 41, Moshayedi discloses a method for determining a status associated with a non-volatile memory system *(paragraphs [0007] and [0034])*, the non-volatile memory system including a plurality of spare units of erase *(Fig. 2; paragraphs [0038]-[0040] and [0048])*, the method comprising:

automatically determining when the non-volatile memory system is nearing a condition which renders the non-volatile memory system as being substantially unreliable *(paragraphs [0053]-[0055])*;

generating an indication when it is determined that the non-volatile system is nearing the condition which renders the non-volatile memory system as being substantially unreliable *(Abstract, paragraph [0056], page 7 claim 35)*, wherein the indication is arranged to indicate that the non-volatile memory system is nearing the condition which renders the non-volatile memory system as being substantially unreliable *(paragraphs [0053]-[0056])*;

saving the indication *(paragraph [0056])*;

wherein automatically determining when the non-volatile memory system is nearing a condition which renders the non-volatile memory system as being substantially unreliable includes:

updating a counter, the counter being arranged to be updated each time a spare unit of erase of the plurality of spare units of erase is reassigned *(paragraphs [0050]-[0052], page 7*

claim 36), wherein the counter indicates a number of spare units of erase remaining in the plurality of spare units of erase *(paragraph [0050])*; and

comparing the counter to a threshold value, the threshold value being indicative of a number of spare units of erase of the plurality of spare units of erase which are not to be reassigned in order for the memory system to be considered as useable *(paragraphs [0053]-[0055])*.

As in claim 42, Moshayedi discloses generating the indication when it is determined the non-volatile system is nearing the condition which renders the non-volatile memory system as being substantially unreliable includes:

determining when comparing the counter to the threshold value yields a first result, wherein the indication is arranged to indicate that the memory system is nearing the condition which renders the non-volatile memory systems as being substantially unreliable when comparing the counter to the threshold value yields the first result *(paragraphs [0053]-[0055])*.

As in claim 43, Moshayedi discloses the condition which renders the non-volatile memory systems as being substantially unreliable when comparing the counter to the threshold value yields the first result is one of an end-of-life condition and a fault condition *(Abstract, paragraphs [0053]-[0056])*.

As in claim 45, Moshayedi discloses a non-volatile memory system for storing information *(paragraphs [0007] and [0034])*, the non-volatile memory system comprising:

a plurality of spare units of erase *(Fig. 2; paragraphs [0038]-[0040] and [0048])*;

means for automatically determining when the non-volatile memory system is nearing a condition which renders the non-volatile memory system as being substantially unreliable *(paragraphs [0053]-[0055])*; and

means for generating an indication when it is determined that the non-volatile system is nearing the condition which renders the non-volatile memory system as being substantially unreliable *(Abstract, paragraph [0056], page 7 claim 35)*, wherein the indication is arranged to indicate that the non-volatile memory system is nearing the condition which renders the non-volatile memory system as being substantially unreliable *(paragraphs [0053]-[0056])*;

wherein the non-volatile memory is one a of a a PC card, a CompactFlash card, a MultiMedia card, a Smart Media card, a Memory Stick card, and a Secure Digital card *(paragraphs [0007] and [0034])*;

wherein the means for automatically determining when the non-volatile memory system is nearing a condition which renders the non-volatile memory system as being substantially unreliable include:

means for updating a counter, the counter being arranged to be updated each time a spare unit of erase of the plurality of spare units of erase is reassigned *(paragraphs [0050]-[0052], page 7 claim 36)*, wherein the counter indicates a number of spare units of erase remaining in the plurality of spare units of erase *(paragraph [0050])*; and

comparing the counter to a threshold value, the threshold value being indicative of a number of spare units of erase of the plurality of spare units of erase which are not to be

reassigned in order for the memory system to be considered as useable *(paragraphs [0053]-[0055])*.

As in claim 46, Moshayedi discloses the means for generating the indication when it is determined the non-volatile system is nearing the condition which renders the non-volatile memory system as being substantially unreliable include:

means for determining when the means for comparing the counter to the threshold value yields a first result, wherein the indication is arranged to indicate that the memory system is nearing the condition which renders the non-volatile memory systems as being substantially unreliable when the means for comparing the counter to the threshold value yields the first result *(paragraphs [0053]-[0055])*.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 4,586,178 Bosse discloses counting of memory cells during reassignment.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Contino whose telephone number is (571) 272-3657. The examiner can normally be reached on Monday-Friday 9:00 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Scott Baderman can be reached on (571) 272-3644. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PFC
2/8/2006

SCOTT BADERMAN
SUPERVISORY PATENT EXAMINER